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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,625	01/22/2004	Meng-An Pan	58268.00350	3541

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STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
NGUYEN, TUAN HOANG	
ART UNIT	PAPER NUMBER
2618	

MAIL DATE	DELIVERY MODE
06/29/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/761,625	PAN ET AL.	
	Examiner	Art Unit	
	TUAN H. NGUYEN	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5-9 and 12-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-9 and 12-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 04/07/2010 have been fully considered but they are not persuasive.

In response to Applicant's remark on page 7, Applicant argues that claims 1, 8-9, and 15 recite features that distinguish over the applied references. For example, claim 1 recites "powering on or off at least one branch of the power amplifier according to the received instruction to enable a logarithmic change in the output power of the power amplifier." (Emphasis added). Further, claim 8 recites, e.g., "means for powering on or off at least one branch of the power amplifier according to the received instruction to enable a logarithmic change in output power." (Emphasis added). As an additional example, claim 9 recites "a determining engine, communicatively coupled to the receiving engine, capable of determining how many branches of a power amplifier to power on or off according to the received instruction to enable a logarithmic change in output power." (Emphasis added). Claim 15, for example, states "wherein the plurality of transistors are arranged in a logarithmic scale, thereby enabling a logarithmic change in output power with the powering on or off of a transistor." (Emphasis added). However, Hareyama (U.S PAT. 6,700,440 **does not describe an amplifier having the aforementioned distinguishing features**. Examiner respectfully disagrees with the Applicant argument. **For claim 1**, Applicant should refer to Hareyama reference, figures 2A-2C, col. 5 lines 29-49 and col. 6 lines 28-51 whereas the Examiner interpreted

"**powering on or off at least one branch of the power amplifier** (i.e., switches SW20 and SW21 shown in figure 2A are **changeover switches for turning on or off the operation of the power amplifier** according to output power regions. Similarly, switches SW11 and SW12 are switches for performing the connection and **splitting off of the branches** composed of the aforesaid circuit components in the matching circuit 2 in accordance with the matching condition changed by the turning on or off of the operation of the power amplifier PA(2) 1_2 according to the output power regions for changing the circuit constants) **according to the received instruction to enable a logarithmic change in the output power of the power amplifier**. (figure 1, col. 3 line 63 through col. 4 line 6, i.e., the output power control of a RF power amplifier 1 is performed such that it can be controlled by predetermined steps by a PA_CONT signal (a direct current (DC) signal). **The PA_CONT signal is supplied from a controller (not shown) being a microcomputer to the RF power amplifier 1** such that the values detected by an output power detector 3 (**the detector 3 detects the power output from the RF power amplifier 1 through a matching circuit 2** in this case) are an instructed value transmitted from a base station (not shown) as a target value. Then the instructed power is output from the matching circuit 2)". Furthermore, Hareyama teaches control or instruction for controlling the output of the branch power amplifier in "dBm" (dB is a unit of Logarithmic (Log) measurement), shown in figure 4, col. 6, lines 13-27, which is Logarithmic (Log) scale. Therefore, the teaching of the prior art references still read on.

For claims 8 and 9 the arguments are the same as claim 1 above.

For claim 15, the Applicant also argues that Hareyama does not describe "**the plurality of transistors are arranged in a logarithmic scale, thereby enabling a logarithmic change in output power with the powering on or off of a transistor**.". Examiner respectfully disagrees with the Applicant argument. Applicant should refer to Hareyama reference, figure 1, col. 4 lines 7-29 whereas the Examiner interpreted "**the plurality of transistors are arranged in a logarithmic scale, thereby enabling a logarithmic change in output power with the powering on or off of a transistor**." i.e., a plurality of switching-driven transistors are used in a configuration such that the transistors are connected in parallel (arranged in a logarithmic scale) for the improvement of efficiency of the high frequency power amplifier, the output power of which can continuously be controlled as shown in fig. 1. A fixed drain voltage is applied to portion of the plurality of transistors connected in parallel, and a variable drain voltage is applied to the other portion of the transistors according to a control value. Moreover, the turning on and off of the transistors having fixed drain voltages are made controllable. Such a configuration enables the execution of the following operations. That is, **the operations of the transistors having fixed drain voltages are turned on in a high output power region**. And, the operations, which have been **turned on in the high output power region, of the transistors having fixed drain voltages are tuned off in a low output power region**. Furthermore, Hareyama teaches control or instruction for controlling the output of the branch power amplifier in "dBm" (dB is a unit of Logarithmic (Log) measurement), shown in figure 4, col. 6, lines 13-27, which is Logarithmic (Log) scale. Therefore, the teaching of the prior art references still read on.

Base on the above rational, it is believed that the claimed limitations are met by the references submitted and therefore, the rejection maintained.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-2 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pehlke et al. (US PUB. 2002/0136325 hereinafter, "Pehlke") in view of Hareyama (U.S PAT. 6,700,440) and further in view of Gandhi et al. (US PAT. 6,968,201 hereinafter, "Gandhi").

Consider claim 1, Pehlke teaches a method, comprising: receiving an instruction to adjust the output power of power amplifier (fig. 4, page 5 [0051]); and amplifying a signal according to the adjusted output power (fig. 4, page 5 [0051]).

Pehlke does not explicitly show that powering on or off at least one branch of the power amplifier according to the received instruction to enable a logarithmic change in output power of the amplifier.

In the same field of endeavor, Hareyama teaches powering on or off at least one branch of the power amplifier according to the received instruction to enable a

logarithmic change in output power of the amplifier (fig. 4, col. 5 lines 29-38 and col. 6 lines 13-51).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, powering on or off at least one branch of the power amplifier according to the received instruction to enable a logarithmic change in output power of the amplifier, as taught by Hareyama, in order to provide a high frequency power amplifier having further improved efficiency thereof in comparison with a conventional amplifier and having a structure such that its output can be controlled continuously by changes in the drain voltages of switching-driven transistors.

Pehlk and Hareyama in combination fail to teach the instruction specifies at least one of a percentage change in power and a dB change in power.

However, Gandhi teaches the instruction specifies at least one of a percentage change in power and a decibel (dB) change in power (col. 2 lines 26-49).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Gandhi into view of Pehlk and Hareyama in order to generate power adjust commands for mobiles being served by a base station in a system-based, or centralized, manner by considering overall system performance during power control, rather than solely considering the state of individual mobiles, when high interference conditions occur.

Consider claim 2, Pehlke further teaches transmitting the amplified signal (page 6 [0064]).

Consider claim 8, Pehlke teaches a system, comprising: means for receiving an instruction to adjust the output power of power amplifier (fig. 4, page 5 [0051]); and means for amplifying a signal according to the adjusted output power (fig. 4, page 5 [0051]).

Pehlke does not explicitly show that means for powering on or off at least one branch of the power amplifier according to the received instruction to enable a logarithmic change in output power.

In the same field of endeavor, Hareyama teaches powering on or off at least one branch of the power amplifier according to the received instruction to enable a logarithmic change in output power (fig. 4, col. 5 lines 29-38 and col. 6 lines 13-51).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, powering on or off at least one branch of the power amplifier according to the received instruction to enable a logarithmic change in output power, as taught by Hareyama, in order to provide a high frequency power amplifier having further improved efficiency thereof in comparison with a conventional amplifier and having a structure such that its output can be controlled continuously by changes in the drain voltages of switching-driven transistors.

Pehlk and Hareyama in combination fail to teach the instruction specifies at least one of a percentage change in power and a dB change in power.

However, Gandhi teaches the instruction specifies at least one of a percentage change in power and a decibel (dB) change in power (col. 2 lines 26-49).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Gandhi into view of Pehlk and Hareyama in order to generate power adjust commands for mobiles being served by a base station in a system-based, or centralized, manner by considering overall system performance during power control, rather than solely considering the state of individual mobiles, when high interference conditions occur.

Consider claim 9, Pehlke teaches a system, comprising: a receiving engine capable of receiving an instruction to adjust the output power of power amplifier (fig. 4, page 5 [0051]); and a power amplifier engine, communicatively coupled to the determining engine and the power amplifier, capable of transmitting the determination to the power amplifier (col. 6 lines 3-23).

Pehlke does not explicitly show that a determining engine, communicatively coupled to the receiving engine, capable of determining how many branches of a power amplifier to power on or off according to the received instruction to enable a logarithmic change in output power.

In the same field of endeavor, Hareyama teaches a determining engine, communicatively coupled to the receiving engine, capable of determining how many branches of a power amplifier to power on or off according to the received instruction to enable a logarithmic change in output power (fig. 4, col. 5 lines 29-38 and col. 6 lines 13-51).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, a determining engine, communicatively coupled to

the receiving engine, capable of determining how many branches of a power amplifier to power on or off according to the received instruction to enable a logarithmic change in output power, as taught by Hareyama, in order to provide a high frequency power amplifier having further improved efficiency thereof in comparison with a conventional amplifier and having a structure such that its output can be controlled continuously by changes in the drain voltages of switching-driven transistors.

Pehlk and Hareyama in combination fail to teach the instruction specifies at least one of a percentage change in power and a dB change in power.

However, Gandhi teaches the instruction specifies at least one of a percentage change in power and a dB change in power (col. 2 lines 26-49).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Gandhi into view of Pehlk and Hareyama in order to generate power adjust commands for mobiles being served by a base station in a system-based, or centralized, manner by considering overall system performance during power control, rather than solely considering the state of individual mobiles, when high interference conditions occur.

4. Claims 5, 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pehlke in view of Hareyama and Gandhi and further in view of Bult et al. (US PUB. 2004/0219898 hereinafter, “Bult”).

Consider claim 5, Pehlk, Hareyama, and Gandhi in combination fail to teach the powering on or off a branch changes the output power of the power amplifier linearly in dB.

However, Bult teaches the powering on or off a branch changes the output power of the power amplifier linearly in dB (page 55 [0771]).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Bult into view of Pehlk, Hareyama, and Gandhi in order to provide a transmitter is disposed on the substrate operating in cooperation with the receiver to establish a two way communications path.

Consider claim 12, Pehlk, Hareyama, and Gandhi in combination fail to teach powering on or off a branch changes of the output power of the differential power amplifier linearly in dB.

However, Bult teaches powering on or off a branch changes of the output power of the differential power amplifier linearly in dB (page 55 [0771]).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Bult into view of Pehlk, Hareyama, and Gandhi in order to provide a transmitter is disposed on the substrate operating in cooperation with the receiver to establish a two way communications path.

Consider claim 16, Pehlk, Hareyama, and Gandhi in combination fail to teach the powering on or off a branch in the plurality of branches changes the output power of the power amplifier linearly in decibel.

However, Bult teaches the powering on or off a branch in the plurality of branches changes the output power of the power amplifier linearly in decibel (page 55 [0771]).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Bult into view of Pehlk, Hareyama, and Gandhi in order to provide a transmitter is disposed on the substrate operating in cooperation with the receiver to establish a two way communications path.

5. Claims 6, 7, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pehlke in view of Hareyama and Gandhi and further in view of Eidson et al. (U.S PAT. 6,255,906 hereinafter “Eidson”).

Consider claim 6, Pehlk, Hareyama, and Gandhi in combination fail to teach thermometer coded power control words are used to power on and off branches of the amplifier.

However, Eidson teaches thermometer coded power control words are used to power on and off branches of the amplifier (col. 5 lines 27-34).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Eidson into view of Pehlk, Hareyama, and Gandhi in order to provide the power amplifier is operated as a completely digital device with a certain degree of digital pre-distortion compensation.

Consider claim 7, Eidson further teaches the thermometer coded power control words ensure monotonic power control (col. 5 lines 31-34).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Eidson into view of Pehlk, Hareyama, and Gandhi in order to provide the power amplifier is operated as a completely digital device with a certain degree of digital pre-distortion compensation.

Consider claim 13, Pehlk, Hareyama, and Gandhi in combination fail to teach the power engine uses thermometer coded power control words to power on and off branches of the amplifier.

However, Eidson teaches the power engine uses thermometer coded power control words to power on and off branches of the amplifier (col. 5 lines 27-34).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Eidson into view of Pehlk, Hareyama, and Gandhi in order to provide the power amplifier is operated as a completely digital device with a certain degree of digital pre-distortion compensation.

Consider claim 14, Eidson further teaches the thermometer coded power control words ensure monotonic power control (col. 5 lines 31-34).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Eidson into view of Pehlk, Hareyama, and Gandhi in order to provide the power amplifier is operated as a completely digital device with a certain degree of digital pre-distortion compensation.

6. Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pehlke et al. (US PUB. 2002/0136325 hereinafter, "Pehlke") and further in view of Hareyama (U.S PAT. 6,700,440).

Consider claim 15, Pehlke teaches a power amplifier, comprising: a plurality of branches for controlling transistors (fig. 2B page 2 [0022]).

Pehlke does not explicitly show that a plurality of transistors, each transistor being communicatively coupled to a branch of the plurality of branches, wherein the transistors are arranged in a logarithmic scale, thereby enabling a logarithmic change in output power with the powering on or off of a transistor.

In the same field of endeavor, Hareyama teaches a plurality of transistors, each transistor being communicatively coupled to a branch of the plurality of branches, wherein the transistors are arranged in a logarithmic scale, thereby enabling a logarithmic change in output power with the powering on or off of a transistor (fig. 4, col. 4 lines 7-29, col. 5 lines 29-38 and col. 6 lines 13-51).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, a plurality of transistors, each transistor being communicatively coupled to a branch of the plurality of branches, wherein the transistors are arranged in a logarithmic scale, thereby enabling a logarithmic change in output power with the powering on or off of a transistor, as taught by Hareyama, in order to provide a high frequency power amplifier having further improved efficiency thereof in comparison with a conventional amplifier and having a structure such that its output can

be controlled continuously by changes in the drain voltages of switching-driven transistors.

Consider claim 17, Pehlke further teaches a transmitter comprising a power amplifier (page 6 [0061]).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any response to this action should be mailed to:

Mail Stop_____ (Explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents

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Facsimile responses should be faxed to:

(571) 273-8300

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan H. Nguyen whose telephone number is (571)272-8329. The examiner can normally be reached on 8:00Am - 5:00Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Maung Nay A. can be reached on (571)272-7882882. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information Consider the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Tuan H. Nguyen/
Examiner
Art Unit 2618